KABENIN, Nikolay Grigor'yevich, kand. tekhn. nauk; STETSENKO, Yevgeniy Grigor'yevich, kand. tekhn. nauk; ALAD'IN, G.P., inzh., retsenzent; TIBABSHEV, A.I., inzh., red.; BOBROVA, Ye.N., tekhn. red.

[Maintenance and inspection of locomotive trucks] Remont i proverki paravoznykh telezhek. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 133 p.
(MIRA 14:8)
(Locomotives—Maintenance and repair)

YUDOVICH, V.G.; KHLEBORODOV, A.D.; SOLONEVICH, Ye.A.; VEYTS, V.L.; PANOV, F.S.; BELYAYEV, A.N.; ALAD'IN, O.I.; OSIPOV, V.F.; VOROB'YEV, A.I.; PROKOF'YEV, Yu.V.; SOLOV'YEV, Yu.A.; KUZ'MIN, A.V.; ZHIDONIS, V.Yu.; ZOLIN, A.V.; YATSUK, Ye.F. DOBROSLAVSKIY, V.L.; TROFIMOV, Ye.N.; DRYAGIN, Ye.R.; KOROLEV, V.F.; KERIMOV, N.B.; KRAVCHENKO, A.S.; RYVLIN, V.A.; GURCHENKO, A.P.; KRUGLIKOV, T.P.; CHERNYAKOV, F.A.; ANKHIPOV, N.K.

Authors' certificates and patents. Mashinostroenie no.1:101-103 Ja-F '65. (MIRA 18:4)

DZYANEVICH, V. S., inzh.; ALAD'IN, V. N., inzh.

Design of a pleasure launch. Sudostroenie 28 no.10:35 O '62.
(MIRA 16:1)

(Launches)

DZYAKEVICH, V.S., inzh.; ALAD'IN, V.N., inzh.

Service transportation launch. Sudostroenie 31 no.1:45-47 Ja '65.
(MIRA 18:3)

ALAD'IN, V.N., inzh.; ZHURAVLEV, Ye.S., inzh.

Construction and architecture of glass reinforced plastic launches.
Sudostroenie 30 no.8:24-27 Ag '64. (MIRA 18:7)

ALAD'INA A.N.

The effect of glutathione upon vacat oxygen and the oxidation quotient of urine of old rats. A. V. Aladʹina and

other day. the ... Controls received 2 cc of same. Following the injections the vacat O of the 1st series decreased 39%, that of the 2nd series 18%. The oxidation quotient (vacat O/total urinary N) of the first series dropped 24%. Thus it is evident that glutathione improves the oxidation processes in old

AL'BAM, M.A.; PISARENKO, A.P.; LAZARYANTS. E.G.; Prinimali uchastiye: ALADINSKAYA, I.P.; VOLKOVA, S.A.; DYUNINA, V.G.; GROMOVA, V.A.; KOSMODEM'YANSKIY, L.V.; KOPYLOV, Ye.P.; ROKHMISTROVA, A.P.; SHUSHKINA, Ye.N.

High-styrene rubber mixtures for the manufacture of microporous non-shrinking rubbers. Kauch. i rez. 22 no.7:1-3 Jl '63. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut plenochnykh materialov i iskusstvennoy kozhi i Nauchno-issledovatel'skiy institut monomerov dlya sinteticheskogo kauchuka.
(Rubber, Synthetic)

ALADINSKAYA, L.V.

Influence of different types of contemporary general anesthesia on intraocular pressure. Vest.oft. no.1:12-17 '62.
(MIRA 15:11)

1. Klinika glaznykh bolezney (zav. - chlen-korrespondent AMN SSSR prof. V.N. Arkhangel'skiy) i fakul'tetskaya khirurgicheskaya klinika sanitarno-gigiyenicheskogo fakul'teta (zav. - zasluzhennyy deyatel' nauki prof. I.S. Zhorov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.
(INTRAOCULAR PRESSURE) (ANESTHESIA)

ALADINSKIY, P. I.

Ministerstvo geologii. Tekhnicheskoe upravlenie. Organization and work of the ore-dressing laboratory Moskva, Gos. izd-vo feol. lit-ry, 1952. (Trudy laboratorii geologicheskikh upravlenii, trestov, ekspeditsii i partii, vyp. 3) (Mic 55-3938)

Collation of the original, as determined from the film: 54, 5 p.

Russia (1923- U.S.S.R.) Ministerstov geologii. Tekhnicheskoe upravlenie. Opyt organizatsii i ... 1952. (Mic 55-3938)

Microfilm Slavic 469 AC

1. Ore-dressing. I. Aladinskii, P. I.

ALADINSKIY, P.I.; ARONSKIND, S.Sh.; GLAZKOVSKIY, V.A.; KVASKOV, A.P.; SUVOROV, F.S.; SHMANENKOV, I.V., redaktor; BASMANOV, V.A., redaktor; SERGEYEVA, N.A., redaktor; MANINA, M.P., tekhnicheskiy redaktor

[Results of the organization and work of an ore-dressing laboratory] Opyt organizatsii i raboty obogatitel'noi laboratorii. Trudy lab. geol.upr. no.3:3-57 '52. [Microfilm] (MLRA 7:11)
(Ore dressing)

ALADINSKIY, V.I., kand. tekhn. nauk, dots.

[Heavings on city streets] Puchiny na gorodskikh dorogakh. Moskva, Stroiizdat, 1965. 92 p. (MIRA 18:4)

SOURCE: Izmeritel'naya tekhnika, no. 8, 1964, [illegible]

TOPIC TAGS: silicon diode, voltage regulating diode, precision silicon diode / D818 silicon diode

ABSTRACT: Generalities about silicon voltage-regulating diodes are given, and [illegible] makes are described. D818-A, -B, -V, -G, -D, and -Ye types have these characteristics: rated current, [illegible] ± (5—[illegible])%, differential resistance, 18 ohms or less; deviation of the stabilized voltage, ± (16—320) mv for -60+120C; average temperature coefficient of voltage, ± (0.001—0.02)% per 1C for -60+120C (more detailed table supplied). D818

Card 1/2

[redacted] designed to be resistant to mechanical and climatic influences. Their [redacted]

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

SUB CODE: EC NO REF SOV: 000 OTHER: 000

Card 2/2

L 24243-65 EWT(1)/EWG(k)/T/EWA(h) Pz-6/Peb IJP(c) AT

ACCESSION NR: AP5002904 S/0109/65/010/001/0102/0111

SOURCE: Radiotekhnika i elektronika, v. 10, no. 1, 1965, 102-111

TOPIC TAGS: semiconductor breakdown, silicon p n junction

[illegible] a 0.2-mm-diameter Al [illegible] into As [illegible] resistivity of 0.008—0.15 ohm-cm. The ohmic contact was made of Au + 0.1% Sb foil. The current-voltage characteristics measured without illumination were analyzed. The experiments proved that two breakdown mechanisms — tunnel and [illegible] — take place simultaneously [illegible]. An interaction between these mechanisms resulted in a sign reversal of the breakdown-voltage

Card 1/2

L 24243-65

ACCESSION NR: AP5002904

2

temperature coefficient and accounted for the sharp effect of temperature on the [illegible]

Rev., 1957, 108, 29) found 2.6±0.1 ev. The author thanks B. M. Vul and L. B. Keldysh for their advice. Orig. art. has: 10 figures and 25 formulas. [03]

ASSOCIATION: none

SUBMITTED: 04Oct63 ENCL: 00 SUB CODE: EC SS

NO REF SOV: 002 OTHER: 006 ATD PRESS: 3177

Card 2/2

ALADINSKIY, V.K.

Temperature deper.dence of the breakdown voltage in silicon p-n junctions. Radiotekh. i elektron. 10 no.1:201-203 Ja '65.
(MIRA 18:2)

EWT(l)/EWT(m)/EPF(c)/EPA(w)-2 /T/EWP(t)/EWP(b)/EWA(m)-2 Pab-10/

ACCESSION NR: AP5011586 UR/0181/65/007/006/1813/1820

AUTHOR: Maslinskiy, V. K.

TOPIC TAGS: collision ionization, silicon p n transition, hot carrier, hot carrier distribution function, collision ionization coefficient

ABSTRACT: [illegible] data for breakdown in short silicon p-n transitions, the dependence of the character of the distribution function of hot carriers heated by a strong electric field on the potential of the maximum field during a breakdown is investigated. In strong electric fields $\sim 10^6$—10^5 v·cm^{-1}, in addition to

L 55150-65
ACCESSION NR: AP5014586

istic field. For weak fields ($E < 3 \times 10^5$ v·cm^{-1}) the impact ionization is of a

art. has: 16 formulas and 5 figures. [JA]

ASSOCIATION: none

SUBMITTED: 15Aug64 ENCL: 00

SUB CODE:

NO REF SOV: 006 OTHER:

Card 2/2

L 9578-66 EWT(1)/EWT(m)/EWP(w)/ETC/EPF(n)-2/EWG(m)/T/EWP(t)/EWP(b) IJP(c) JD/AT

ACC NR: AP5027446 SOURCE CODE: UR/0181/65/007/011/3452/3454

AUTHOR: Aladinskiy, V. K.; Maslov, A. A.

ORG: none

TITLE: Electrical properties of Ge-GaAs heterojunctions

SOURCE: Fizika tverdogo tela, v. 7, no. 11, 1965, 3452-3454

TOPIC TAGS: germanium semiconductor, gallium arsenide, semiconductor research, heterogeneous semiconductor junction

ABSTRACT: The authors investigate *p-n* and *n-n* structures in the Ge-GaAs system and study their electrical characteristics. The heterojunction specimens were grown epitaxially using an iodide process. It was found that these junctions have rectifying characteristics, but their behavior differs radically from that of homogeneous structures. Current-voltage curves are given for both types of heterogeneous junction. The characteristics for *p-n* structures in the forward direction conform to the general equation for a rectifier

$$I \simeq \exp\left(\frac{qV}{\eta kT}\right)$$

For this type of *p-n* junction at $T = 300°K$, the value of η is 1.5-2. With an increase in temperature, $\eta \approx 1$, while $\eta > 2$ at $T = 77°K$. The voltage-capacitance charac-

Card 1/2

L 9578-66

ACC NR: AP5027446

teristics for the p-n junctions indicate a sharp transition, i. e. capacity depends on bias according to the relationship $C \sim V^{-1/2}$. The values of n for n-n junctions are greater than 2, which is generally typical of metal-semiconductor contacts. However, the voltage-capacitance characteristics for this type of junction indicate neither a sharp nor a linear impurity distribution. Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 14Jun65/ ORIG REF: 001/ OTH REF: 005

Card 2/2

L 1447-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(h) IJP(c) JD/AT

ACC NR: AP6000856 SOURCE CODE: UR/0181/65/007/012/3571/3578

AUTHOR: Aladinskiy, V. K. 55 50

ORG: none

TITLE: Influence of phonons on the temperature dependence of the tunnel breakdown in silicon 27

SOURCE: Fizika tverdogo tela, v. 7, no. 12, 1965, 3571-3578

TOPIC TAGS: phonon interaction, temperature dependence, silicon, tunnel effect, pn junction

ABSTRACT: This is a continuation of earlier work by the author on breakdown of pn junctions (Radiotekhnika i elektronika No. 4, 104,1965) but differs from the latter in that principal attention is focused on low temperatures. The author analyzes the temperature dependence of the tunnel-breakdown voltage in a sharp p-n junction at constant breakdown current is constant. The temperature coefficient of the breakdown voltage data depends strongly on the temperature for indirect tunnel transitions in which phonons participate, and has a maxi-

Card 1/3

2

mum in the region where the number of phonons is equal approximately to the ratio β of probability of tunneling accompanied by generation of phonons to the probability of tunneling with absorption of phonons. The temperature at which β reaches the maximum is connected with the phonon energy by a definite equation which shows that the maxima from different phonons can overlap and that the steplike character of the temperature dependence of the tunnel breakdown is due to simultaneous absorption of several phonons. The results obtained were verified experimentally with p-n junctions and good agreement is established between the energies of the phonons obtained by determining the temperature of the maxima of β and the energies of the phonons determined on the basis of optical data. The experiments were made on p-n junctions produced by fusing an aluminum wire 200 μ in diameter into n-type silicon doped with arsenic with excess impurity concentration $N_D = (3 -- 5) \times 10^{18}$ cm^2. The results show that phonon absorption processes prevail over phonon generation even at low temperatures. [21, 24, 55]

Author thanks B. M. Vul for valuable remarks and L. V. Keldysh for a

L 14147-66

ACC NR: AP6000856

discussion of the results. Orig. art. has: 5 figures, 16 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 14Jun65/ ORIG REF: 002/ OTH REF: 004

09/

Card 3/3

ALADIYEV, I.

TOPCHIYEV, A., ALADIYEV, I. and SAVITSKIY, P.

"Production and Application of Radioactive Isotopes in the USSR."

paper to be presented at 2nd UN Intl.' Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sept 58.

ALADJEM-TAJHNER, Ana; DINIC, Budimir

Erythroblastosis fetalis treated with exchange transfusions.
Srpski arh. celck. lek. 84 no.12:1393-1400 Dec 56.

1. Ginekolosko-akuserska bolnica grada Beograda, Upravnik: Dobrivoje Lukic.
(BLOOD TRANSFUSION, in various dis.
exchange in erythroblastosis fetalis, indic. (Ser))
(ERYTHROBLASTOSIS FETAL, ther.
exchange blood transfusion, indic. (Ser))

ALADJOV, St.; ZIVKOV,E.; PENOV,G.

Electroretinogram in diseases of the uvea. Nauch. tr. vissh. med. inst. Sofiia 43 no.3:27-30 '64.

1. Chair of Ophthalmology (Director: Prof. E. Zivkov) and Chair of Physiology (Director: Prof. T. Gocev) Higher Medical Institute, Sofia.

Country : USSR
Category : Cultivated Plants. Cereals. Leguminous Plants. Tropical Cereals. M

Abs Jour : RZhBiol., No 6, 1959, No 24816

Author : Aladova, L. P.
Inst : Siberian Scientific Research Institute of Agriculture [Siberian Grain Scientific Research Institute].
Title : The Efflorescence Biology of Spring Wheat.

Orig Pub : Byul. nauchno-tekhn. inform. Sibirsk. n.-i. in-ta s. kh. 1958, No. 2, 24-27

Abstract : Study of the efflorescence biology was conducted during 1955-1957 on the testing plot of Sibniiskhoz on 5 varieties of hard and 3 varieties of soft wheat. Open flowering was observed in the humid and cool year of 1956: up to 74 percent in the hard and up to 96-97 percent in the

Card : 1/3

Country : USSR
Category : Cultivated Plants. Cereals. Leguminous Plants./ Tropical Cereals. M

Abs Jour : RZhBiol., No 6, 1959, No 24816

Author :
Inst :
Title :

Abstract : soft wheat. Incomplete fertilization was noted at the open and closed types of flowering, thus indicating the absence of dependency between the ripening of the spike and the type of flowering. During the observations it was noted that the flowers of the variety of Akhmolinka 5 opened up at 4 degrees; at the temperature of 6-10 degrees, flowering was observed in majority of varieties. The optimal wheat-flowering temperature fluctuated from 16-20 degrees to 31-35

Card : 2/3

ALADOVA, L. P., Cand of Bio Sci — (diss) "Hard Wheat as the Starting Material for Breeding in Western Siberia," Leningrad, 1959, 15 pp (Horticultural Institute, Academy of Agricultural Sciences im V. I. Lenin) (KL, 8-60, 115)

ALAD'YALOVA, N.A.

FRANK, G. M., ALAD'YALOVA, N. A. and SNEZHKO, A. D.

"Biophysical Analysis of the Mechanisms of Biological Effect of Ionizing Radiation

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sep 58.

ALAD'YEV, A.T., inzh.

Intensification of electrical tests for high-voltage parts made of radio-ceramic materials in mass production. Trudy GIEKI no.2: 141-148 '57. (MIRA 11:7)
(Radio--Equipment and supplies) (Ceramic materials--Testing)

ALAD'YEV, A.T.

Durability of technical dielectrics operating in high frequency fields. Fiz. tver. tela 1 no.6:935-938 Je '59. (MIRA 12:10)
(Dielectrics--Testing)

ALAD'YEV, A.T., inzh. (Moskva)

Concerning the reliability of ceramic capacitors with a high reactive power rating. Elektrichestvo no.2:30-32 F '62. (MIRA 15:2)

(Condensers (Electricity))

ALAD'YEV, A.T., inzh. (Moskva); VALEYEV, Kh.S., kand.tekhn.nauk (Moskva)

Consideration of the aging of the dielectric in designing ceramic condensers with large reactive power. Elektrichestvo no.3:37-41 Mr '64. (MIRA 17:4)

ALAD'YEV, A.T., kand. tekhn. nauk; VALEYEV, Kh.S., kand. tekhn. nauk

Effect of the cooling of ceramic condensers with large reactive power rating on the heat stresses in the dielectric. Elektrichestvo no.6: 65-67 Je '65. (MIRA 18:7)

1. Gosudarstvennyy nauchno-issledovatel'skiy elektrokeramicheskiy institut.

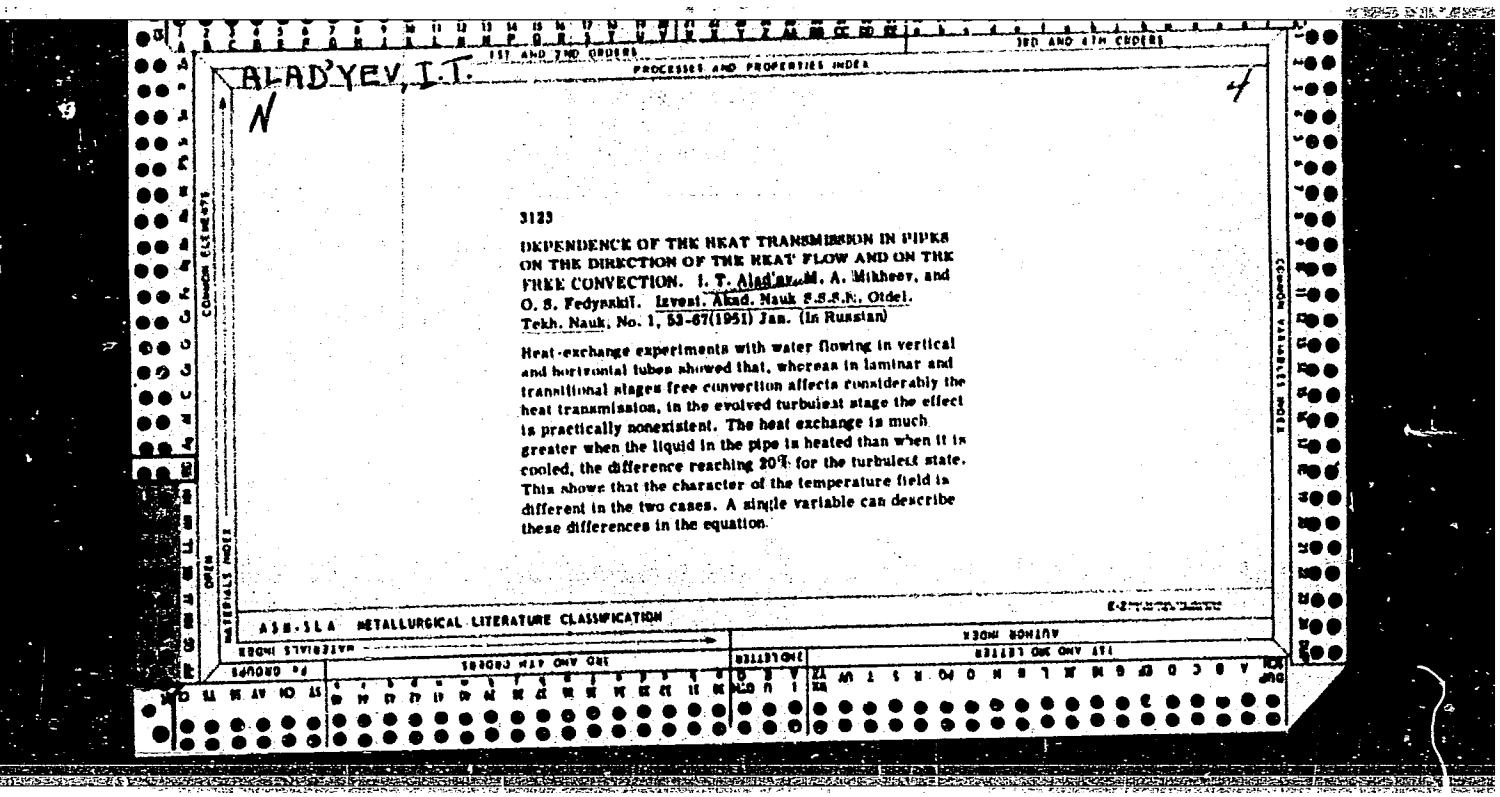
ALAD'YEV, I.T. CAND TECH SCI

Dissertation: "Variation of the Coefficient of Heat Emission along the length of a Pipe."

21 April 49

Power Engineering Inst imeni Acad G.M. Krghighanosskiy, Acad Sci USSR.

SO Vecheryaya Moskva
Sum 71



D.A ALAD'YEV, I.T.

16/67 532.542.4

Experimental Determination of Local and Average Coefficients of Heat Emission in a Turbulent Flow in Tubes

I.T. Aladyev

Izv. Akad. Nauk, Otd. Tekh. Nauk. (11), 1669-1681 1951

U.S.S.R.

The work is devoted to the study of the dependence of local and average coefficients of heat emission on the length of the tube, in a turbulent flow. The experiment part and the method of treating the exp[illegible]ntal data are given in some detail, together with a brief review of other works on the subject. Relevant tables and graphs are supplied for the temperatures of walls and fluid, and for local and average coefficients of heat emission. It has been established that in case of a developed turbulent flow in a tube, the magnitudes of local heat emission coefficients are depreciating

(over)

along the tube up to a certain point. Further from that cross-section local coefficients do not depend on Reynolds number and can be calculated from a certain formula which in given. Under the same conditions the average coefficients are decreasing with the increase of the length of the tube. The length of the section of 'thermal stabilization' is a function of Re, and it is decreasing with growth of the latter. From a certain point, however, for all Re numbers, the heat emission coefficient no longer depends on the relative length of the tube and can be easily calculated.

ALAD'YEV I.T.

POLETAVKIN, P.G.; PETROV, V.I.; DODONOV, L.D.; ALAD'YEV, I.T.; KIRPICHEV, M.V.

New method for the study of heat loss during the boiling of liquids. Dokl. AN SSSR 90 no.5:775-776 Je '53. (MLRA 6:5)

1. Energeticheskiy institut im. G.M. Krzhizhanovskogo Akademii nauk SSSR (for all exc. Kirpichev). 2. Akademiya nauk SSSR (for Kirpichev). (Heat engineering)

Describes new method based on direct electrical heating of an exptl zone inside of thin-walled tube. Protection against overheating of exptl tube is achieved with aid of auxiliary liquid, which washes heated surface. Presents results of exptl verification of method. Presented by Acad M.V.Kirpichev 1 Apr 53.

260T21

Abstracted in B.T.R. V.3, No 3, Mar 1954

ALAD'YEV, I.T., redaktor, kandidat tekhnicheskikh nauk; VEGER, A.L., redaktor; ZELENKOVA, Ye.V., tekhnicheskiy redaktor

[Using atomic power for peaceful purposes] Primenenie atomnogo energii v mirnykh tseliakh. Moskva, 1956. 156 p. (MLRA 9:2)

1. Akademiya nauk SSSR.

(Atomic power)

ALAD'YEV, I. T.

"Utilization of Radiation in the Chemical Industry," by V. Druzhenkov, Primeneniye Atomnoy Energii v Mirnykh Tselyakh (Application of Nuclear Energy for Peaceful Purposes), edited by I. T. Alad'yev, Candidate of Technical Sciences, Moscow, Academy of Sciences USSR, 1956, pp 40-51

In work in the field of radiation chemistry nuclear reactors, installations which generate X rays or gamma-rays of high energy, and radioactive isotopes (particularly radioactive cobalt) are used as sources of radiation. Inorganic systems (particularly aqueous solutions) and a great number of organic substances are being investigated.

The use of water as a moderator and coolant in nuclear reactors has necessitated a special investigation of processes which take place when water is irradiated. It has been established that irradiation with X rays or gamma-rays of water that is free of dissolved substances does not produce any perceptible effect. On the other hand, irradiation of water that contains impurities or is saturated with air results in radiolysis. Hydrogen peroxide and explosive mixtures of hydrogen and oxygen are formed as a result of this radiolysis. The formation of explosive gas mixtures in nuclear reactors is highly undesirable.

54M.1345

ALAD'YEV, I.T.

When an aqueous solution of ferrous sulfate is irradiated, the ferrous sulfate is oxidized to ferric sulfate. This reaction is of great importance in radiation chemistry, because it is used in dosimetry as a means of determining the quantity of energy that is absorbed by the object being irradiated. The reaction of the reduction of cerium ions ($Ce^{4+} \xrightarrow{\text{irradiation}} Ce^{3+}$) and other reactions are also used for this purpose.

If the water that is being irradiated has been saturated with oxygen, the yield of hydrogen peroxide produced by irradiation is considerably increased. Work by Veselovskiy and his collaborators has shown that if a semiconductor (e.g., ZnO) has been introduced into the reaction vessel, this semiconductor effectively transforms the energy of radiation into energy of the semiconductor electrons, and that the electrons are then capable of inducing a chemical process. For example, in the presence of ZnO the yield of hydrogen peroxide on irradiation of alkaline solutions is increased by a factor of 3-5 as compared with the yield obtained when no sensitizer such as ZnO has been added.

The hydrogen peroxide formed as a result of radiolysis during irradiation of a saturated solution of $Ba(OH)_2$ reacts with the barium hydroxide, forming an insoluble precipitate of barium peroxide. Under the circumstances a constant rate of the formation of hydrogen peroxide is observed. In other words, this rate does not diminish when the dose of irradiation is increased, because no decomposition of hydrogen peroxide takes place.

54M.1345

Proskurnin and Barelko found that the effectiveness of the oxidation of benzene to phenol by products of the radiolysis of water is enhanced in the presence of ions of iron. The yield of phenol in this case is increased several times. The applications mentioned above serve as examples demonstrating that it will be possible to produce important chemicals on an industrial scale by utilizing high-energy radiation after suitable conditions for the process have been found. Research done by USSR scientists and outside the USSR has shown that when a great number of powerful sources of radiation becomes available it will be possible to carry out industrial oxidation of the nitrogen of the air by the radiation method.

The problem of the transformation of nuclear energy into electrical energy is closely connected with the action of radiation on aqueous solutions. The first results of work in this field, which were reported by USSR scientists at the Geneva Conference on the Peaceful Uses of Nuclear Energy, indicated that this transformation can be accomplished by employing electrochemical systems. A judicious selection of the electrolyte and electrodes will make it possible to utilize the oxidative and reductive components of radiolysis and thus to establish a certain definite difference of potential. In a cell of this type the maximum efficiency with reference to the amount of radiation energy absorbed will be limited by radiolysis effects. The problem consists in selecting the most effective pairs of electrodes as well as solutions which produce sufficiently stable and concentrated electrochemically active components under the action of radiation.

54M.1345

Investigation of the effects of high-energy radiation on organic substances is of great practical importance. Splinter elements formed from uranium during the operation of nuclear reactors must be periodically separated from the uranium: otherwise the chain reaction of fission will be interfered with. In view of the fact that organic substances are used in the separation of splinter elements from uranium by extraction, the action of radiation on these organic substances is very important. Two requirements must be fulfilled: (a) the organic substances by means of which the elements are extracted must be insensitive toward radiation, so that they can be recovered and reused in subsequent extractions; (b) the substances that are to be separated must not form complex compounds with products of the radiolysis of the substance used for extraction, because otherwise losses of the elements that are being isolated will ensue, or these elements will be contaminated by impurities.

Investigation of the effects of radiation on organic substances opens up extensive possibilities as far as the initiation of chain reactions such as those encountered in halogenations, oxidations, cracking, and polymerization is concerned. From the standpoint of industrial applications, radio-chemical methods may already be regarded at this stage as superior to the methods employed hitherto in conducting such reactions.

54M.1345

The radiochemical control of oxidation reactions appears to be particularly promising. Research concerning the action of radiation on organic substances also makes it possible to find materials which protect against the harmful effects of radiation.

It has been recently established that crude petroleum can be cracked to gasoline at room temperature by exposing the petroleum to gamma-radiation emitted by radioactive cobalt. If cracking of crude petroleum is carried out within a nuclear reactor, the yield of gasoline obtained will be superior to that resulting from the cracking of the same quantity of petroleum by the thermal method.

Valuable results have been achieved in the study of the effects of radiation on plastics. Radiochemical methods have been found very useful in inducing polymerization of monomers such as ethylene and propene, which cannot be readily polymerized otherwise. Under the action of radiation, monomers of this type are transformed into free radicals which initiate chain reactions, so that polymerization takes place at low temperatures. By using the radiation method, the process of polymerization can be readily controlled in such a manner that a polymer of the desired molecular weight is obtained. Furthermore, entirely new polymers with desirable characteristics can be obtained by employing the radiation effect. Among these polymers are polyperfluoropropene, polyperfluorobutadiene, and polyperfluoracrylonitrile.

SUM. 1345

ALAD'YEV, I.T.

Of great interest is not only the effect of radiation on the process of polymerization, but also its action on high-polymer substances. The value of results obtained in this field is twofold. First, it is necessary to know how polymers will behave when they are used as insulators, screens, holders, interlinings, etc. in reactors and in other types of equipment where exposure to radiation takes place. Second, generation of nuclear energy on an increased scale will make it possible to apply radiation for the purpose of modifying the properties of polymers.

The first results in this field were published in the period 1951-1952. Work on the subject done under the direction of Kargin and Karpov in the USSR and by Charlesby and others outside the USSR established that irradiation of polymers leads to the scission of chemical bonds and to the formation of free radicals. After the formation of free radicals processes of cross-linking predominate in some polymers (e.g., polyethylene, polyvinylchloride, polystyrene, and natural rubber) while others (e.g., polyisobutene, polyvinyl alcohol, polymethylmethacrylate, and teflon) are mainly subjected to depolymerization and destruction. Polymers the degree of cross-linking of which has been increased by exposure to radiation acquire a number of valuable properties: their solubility in organic solvents is reduced or disappears entirely and they also become heat-resistant and acid-resistant. For instance, polyethylene articles which have been exposed to the action of radiation in a nuclear

54M-1345

reactor retain their shape at 150° and soften only slightly, while polyethylene which has not been irradiated melts into a formless mass at that temperature. Destruction of polymers under the action of radiation can be applied for the production of porous (foam) polymers when it is accompanied by the evolution of gas. Thus, irradiation of polymethylmethacrylate with neutrons results in the development of gas and leads to the formation of a foam plastic. (U)

54M.1345

ALAD'YEV, I.T.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1748
AUTHOR ALAD'EV,I.T., DODONOV,L.D., UDALOV,V.S.
TITLE The Heat Transfer in Tubes on the Occasion of the Boiling of Not Heated Water.
PERIODICAL Dokl.Akad.Nauk, 111, fasc.3, 593-595 (1956)
Issued: 1 / 1957

The present work deals with the result of the experimental study of the heat transfer in tubes on the occasion of the boiling of not heated water under the pressure of 180 atm.

Methods of Investigation: The test arrangement consisted of a quite simple closed circulation orbit of tubes (type 1X 18 N9T) with an interior and outer diameter of 8,2 and 9,0 mm respectively and with the lengths l = 145 mm and l = 62,5 mm. The inner surface of the tubes was always kept clean by chemical or mechanical means. The investigated part was heated by low voltage parallel current. The temperature of the exterior surface of the tube was measured by means of a resistance thermometer as well as with 6 thermocouples distributed over the length of the tube. From the temperature measured the temperature t_i of the inner surface of the tube was computed in consideration of the temperature drop in the tube wall. The tube circuit was filled with a degassed condensation. Overpressure in the tube was produced and maintained by steam, and circulation (in the investigated part from bottom to top) is produced by means of a pump.

Test results: Tests were carried out at pressures of P = 1,6,11,21,41,81,141, [illegible] t_k (the significance of which is not explained, but probably it is the temperature difference between the liquid and the exterior of the tube) increases with an increasing q, but at q = const Δt_k decreases with increasing p. The data referring to the developing of boiling can be generalized and described by the following empiric approximation formula: $\Delta t_k = (45 - 0,11 t_n)(q \cdot 10^{-6})^{0,3+0,0022P}$. This relation and a further one for the coefficient α_k of heat transfer permits the computation of Δt_k and α_k with an accuracy of 10 to 20%, and only at P ~ 180° does accuracy diminish down to 30 - 40%.

INSTITUTION: Energetical Institute "G.M.KRIZANOVSKIJ" of the Academy of Science in the USSR.

ALAD'YEV, I. T.

ALAD'YEV, I.T., kandidat tekhnicheskikh nauk; DODONOV, L.D., inzhener; UDALOV, V.S., inzhener.

Heat transfer during boiling of underheated water in pipes. Teploenergetika 4 no.9:64-67 S '57. (MLRA 10:8)

1. Energeticheskiy institut Akademii nauk SSSR.
(Heat--Transmission) (Boilers)

AUTHORS: Topchiyev, A. V., Alad'yev, I. T., Savitskiy, P. S. SOV/89-5-3-13/15

TITLE: The Use of Radioactive Isotopes in the USSR (Primeneniye radioaktivnykh izotopov v SSSR)

PERIODICAL: Atomnaya energiya, 1958, Vol. 5, Nr 3, pp. 321-334 (USSR)

ABSTRACT: On the basis of 75 Soviet references the most important fields are mentioned in which radioactive isotopes can be used. They are:

1) Polymerization
   a) Radiolysis of polymers
   b) Oxidation of hydrocarbons
   c) Halogenation
   d) Cracking of hydrocarbons
2) Catalytic processes
3) Hardening of metals
4) Conservation of food
   a) Storage of cereals
   b) Storage of potatoes
   c) Production of natural silk
5) Production of ergosterol

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6) The use of radioactive isotopes for the investigation, checking, and control of processes
   a) Black metal industry
   b) Oil-prospecting
   c) Chemical analysis
   d) Flotation
7) Biochemistry and physiology of plants
8) Biochemistry of animals
9) General biology

At present more than 90 radioactive isotopes, 170 stable isotopes, and more than 360 "marked" preparations are being produced in the USSR.

In 1958 production will include

Co^{60}	190 000	Au^{198}	1 000
C^{14}	200	Ir^{192}	800
P^{32}	1 100	Cr^{137}	1 500
S^{35}	900	Tu^{170}	750
I^{131}	1 200		

Card 2/2 There are 75 references, 75 of which are Soviet.

AREF'YEVA, Ye.I.; ALAD'YEV, I.T.

Effect of the wettability on the heat exchange during ebullition.
Inzh.-fiz.zhur. no.7:11-17 Jl '58. (MIRA 11:8)

1.Energeticheskiy institut AN SSSR, Moskva.
(Heat--Radiation and absorption) (Ebullition)

21(1), 21(4), 21(10)

AUTHORS: Spitsyn, V. I., Academician, SOV/30-58-11-10/48
Alad'yev, I.T., Candidate of Technical Sciences

TITLE: Nuclear Congress at Chicago (Yadernyy kongress v Chikago)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 11, pp 56 - 61 (USSR)

ABSTRACT: The Congress was held in Chicago from March 17 to 21, 1958. In connection with it there was an exhibition in which more than 100 firms participated. The Congress has been convened by the American Nuclear Society and 28 other scientific and engineering associations of the USA as well as the US Atomic Energy Commission. More than 800 specialists in the various fields took part. There were also present scientists from the USSR, India, England, Canada, the Federal Republic of Germany, Italy, Japan, and other countries. More than 220 reports were given dealing with subjects from the following fields: the plans and construction of some nuclear power plants; the construction and operation of test reactors; the use of nuclear reactors

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as sources of heat for industrial purposes; questions pertaining to nuclear fuel and associated materials; chemical processes in the production of nuclear fuel; questions in connection with the training of new experts in nuclear science. A number of American universities and institutes were toured and personal contacts with American scientists were established. It was also found that there were quite a few foreign students and post-graduate scholars working at American Universities, among them people from Japan, Australia, Yugoslavia, Czechoslovakia etc. V.I.Spitsyn (USSR) delivered a report on radiochemical research in the USSR at the chemical department of the university of Pennsylvania, and at Boston university on the use of tracer atoms in the physicochemical examination of some anorganic poly-compounds.

SOV/25-58-12-8/40

AUTHORS: Topchiyev, A.V., Academician, Vice-President of the USSR Academy of Sciences; Alad'yev, I.T., Candidate of Technical Sciences, and Savitskiy, P. S., Chief of the Administration for the Manufacture and Utilization of Isotopes

TITLE: The Use of Radioactive Isotopes in the USSR (Primeneniye radioaktivnykh izotopov v SSSR)

PERIODICAL: Nauka i zhizn', 1958, Nr 12, pp 17-22 (USSR)

ABSTRACT: The authors examine the various possibilities for the use of radioactive isotopes. The reactions resulting from these treatments of processes and materials have been called radiation-chemical changes. According to their nature, the processes are divided into 2 groups: power consuming - with yields of 10 molecules per 100 electron (ev), and highly effective, which proceed with a high yield ($10-10^6$ molecules per 100 ev) requiring energy only

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for starting the reaction. At the present time, processes of the second group have been studied more closely, such as processes of polymerization, oxydation of organic compounds, halogenetion, cracking and processes occuring under the influence of radiation in polymers. Extensive research conducted in the USSR and abroad has showed that processes of radiation polymerization have been realized with yields of 1,000 and more polymerized molecules of the monomer for each 100 ev of energy. As a practical example, the production of polyethylene by gamma radiation is mentioned. Of great importance are considered the activation of catalytical processes and the changing of the structure and mechanical properties of metals by radiation is of great importance. Radioactive isotopes are now being widely used for research purposes, for controlling and regulating processes in the ferrous industry, in prospecting for oil, in chemical analysis, and in the field of construction. The

use of radioactive isotopes offer new prospects for applying automatic control and regulation of industrial processes. As a result of scientific-research conducted in more than 50 Soviet institutions, more than 4,000 devices have been designed and constructed. Among these are the defectoscopes "GUP-So-50","GUP-So-5", "GUP-So-0.5", the thickness meter "ITU" and numerous others. The authors give data on the production of isotopes. At present, more than 90 radioactive, 170 stabile isotopes, and more than 360 compounds marked with isotopes are being produced in the USSR. In 1958, Cobalt-60 with more than 190,000 Curie, Carbon-14 with 200 Curie, Phosphorus-32 with 1,100 Curie, Sulphur-35 with 900 Curie, Iodine-131 with 1,200 Curie, Gold-198 with 1,000 Curie, Iridium-192 with 800 Curie, Cesium-137 with 1,500 Curie,

The Use of Radioactive Isotopes in the USSR SOV/25-58-12-8/40

Thulium-170 with 750 Curie were produced. More than 70 new radioactive and stabile isotopes, and 140-160 compounds, will be produced in the future. There are 6 photos.

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ALAD'yev, I. T.
(4) P. 2

PHASE 1 BOOK EXPLOITATION SOV/2713

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Doklady sovetskikh uchenykh; polucheniye i primeneniye izotopov (Reports of Soviet Scientists; Production and Application of Isotopes) Moscow, Atomizdat, 1959. 388 p. (Series: Its: Trudy, vol. 6) 8,000 copies printed..

Eds. (Title page): G.V. Kurdyumov, Academician, and I.I. Novikov, Corresponding Member, USSR Academy of Sciences; Ed. (Inside book): Z.D. Andreyenko; Tech. Ed.: Z.D. Andreyenko.

PURPOSE: This book is intended for scientists, engineers, physicians, and biologists engaged in the production and application of atomic energy to peaceful uses; for professors and graduate and nongraduate students of higher technical schools where nuclear science is taught; and for the general public interested in atomic science and technology.

COVERAGE: This is volume 6 of a 6-volume set of reports delivered by Soviet scientists at the Second International Conference on the Peaceful Uses of

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24(6) PHASE I BOOK EXPLOITATION SOV/1826

Akademiya nauk SSSR. Energeticheskiy institut

Teploperedacha i teplovoye modelirovaniye (Heat Transfer and Modeling of Heat Processes) Moscow, Izd-vo AN SSSR, 1959. 419 p. Errata slip inserted. 3,500 copies printed.

Resp. Ed.: M. A. Mikheyev, Academician; Ed. of Publishing House: D. A. Ivanova; Tech. Ed.: G. N. Shevchenko.

PURPOSE: The book is intended for scientists concerned with heat transfer, heat emission, and hydraulics of liquid metals, etc.

COVERAGE: This collection is dedicated to the memory of Academician M. V. Kirpichev who in the twenties initiated a systematic investigation of heat transfer processes and the efficiency of heat apparatus. Later he led the development of research work in this field. Two special collections devoted to works of Kirpichev's school have been published, one in 1938, Materialy sovershchaniya po modelirovaniya (Materials of the Conference on Modeling) and in 1951, Teoriya podobiya i modelirovaniye (Theory of Similitude and Modeling). The present collection prepared in 1956 represents further development of the work of this school. This theory is fundamental for the analysis of many heat problems in the field of electrical and radio engineering. Of great importance are the first systematic investigations of heat transfer and the hydraulics of liquid metals which as a new kind of heat carrier may be used in the various branches of modern engineering. As a result of special investigations of some cases of convective heat transfer, a dependence of the process on the kind of liquid, temperature, pressure, direction of [illegible] heat flow, and other factors, was discovered and established. On the basis of a wide generalization of experimental data, new dependable recommendations for heat analysis of engineering equipment were developed. Of no less interest is the work on heat transmission in boiling liquids and the condensation of vapors. All investigations are based on the theory of similitude, the nature of which, according to M. V. Kirpichev, is that of "experimentation." Work on the theory of a regular regime applied to a system of bodies with an internal source of heat is of interest for the future.

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Heat Transfer (Cont.) SOV/1826

Patrov, V. I. and I. T. Aladyev. On the Measurement of Steam Content in Boiling With Underheating 272

The article describes a method of measuring steam content based on the phenomenon that in the process of boiling with underheating in a flow of a liquid, little steam is available on the heated surface. The fluid is circulating in a close contour, having a free surface on which boiling appears. Data on this subject have been obtained by X-rays (H. Buchberg, Stanford University) but are judged insufficient. There are 2 references: 1 Soviet and 1 English.

Aladyev, I. T., M. A. Vel'tishchev, and N. S. Kondrat'yev. Convective Heat Transfer at High Pressures 158

Heat transfer in a turbulent flow of a monophase liquid in a conduit may be calculated using a formula recently proposed by M. A. Mikheyev (Izv. AN SSSR, No 10, 1952), which however is not applicable to other than atmospheric pressures. This article describes the adaptation of Mikheyev's formula to drop liquids at much higher than atmospheric pressure. There are 8 references: 7 Soviet and 1 Czech.

TOPCHIYEV, A.V., akademik; ALAD'YEV, I.T., kand.tekhn.nauk; SERENKOV, V.I. kand.tekhn.nauk

Second International Conference on the Peaceful Uses of Atomic Energy. Khim.nauka i prom. 4 no.4:533-537 '59. (MIRA 13:8)
(Atomic energy—Congresses)

21(9), 24(8)

AUTHORS: Alad'yev, I. T., Dodonov, L. D., Udalov, V. S. SOV/89-6-1-15/33

TITLE: Critical Thermal Stress During the Flow of Water in Tubes (Kriticheskiye teplovyye nagruzki pri techenii vody v trubakh)

PERIODICAL: Atomnaya energiya, 1959, Vol 6, Nr 1, pp 74 - 78 (USSR)

ABSTRACT: The above-mentioned investigation was carried out at the Laboratoriya teploobmena Energeticheskogo instituta AN SSSR (Laboratory for Heat Transfer of the Power Engineering Institute, AS USSR) in 1956/57.
The apparatus by means of which measurements were carried out, consisted of a closed circuit constructed from chrome nickel steel tubes. Water circulation was brought about by a fly pump. Pressure was produced and controlled by means of a steam-compensator, which, at the same time, supplied the circulation. De-aeration was carried out in an expansion vessel. The necessary water temperature was attained and adjusted by means of a cooling system and a heating device. Investigations were carried out in a drawn thin-walled steel tube (type 1Kh18N9T), (diameter of 8.2 mm, wall-thickness 0.4 mm, length 35 - 133 mm).

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The following measurements were carried out:
Pressure, water-consumption and -temperature, and temperature of the walls of the tube. Pressure was measured by means of a manometer (accuracy 0.35), water-consumption by means of a water-meter, and water temperature by means of thermocouples fitted before and behind the investigation tube.
Thermal stress was calculated from amperage and from the electric resistance of the measuring tube. Amperage was determined from the voltage drop in a shunt (2,000 A/45 mV, accuracy 0.5). Measuring accuracy in each individual case amounted to: q_{crit} (critical thermal stress) 3 - 5%, w (flow velocity) - 3%, $\Delta t_H = t_s - t_{ex}$, ($t_s$ saturation temperature and t_{ex} output temperature) $< 2^{\circ}C$.
Series of tests were carried out at the pressure p = 21, 41, 81, 111, 181 and 201 atm and water velocities of 1, 2, 5 and 8 m/sec. In each series q_{crit} was measured with constant p and w and variable Δt_H. Measuring results are shown

graphically and permit the following conclusions to be drawn:

a) The dependence q_{crit} on p, ω and Δt_H is complex.

b) With an increase of the p-value from 40 to 300 atm q_{crit} decreases. At p = 20 and 40 atm the q_{crit} values are practically equal.

c) With increasing ω q_{crit} increases too. With p = 20, 40 and 80 atm and $\Delta t_H < 20^\circ$ an influence exercised by ω is hardly noticeable. On the strength of an analysis of the results obtained by this work and from publications dealing with this field the following may be said:

a) The value of the critical thermal stress of water flowing in tubes ($d \geq 8$ m) or double channels (spacing $h \geq 8$ mm) under pressures of from 20 to 200 atm which has not yet reached saturation temperature, can be derived from the results obtained by the work discussed. In the case of $p \geq 100$ the works (8) and (9) can be used. The data

supplied by the abstracted paper agree with those of (3), (4), and (9) up to 25%.

b) The shape of the channel (diameter, spacing) exercises a certain influence upon q_{crit} under certain conditions, which must be checked if conditions change.

c) In reference (7) no pressure-dependence of the q_{crit} value was found with p = 1 - 21 atm. This result is doubtful. There are 3 figures and 10 references, 5 of which are Soviet.

SUBMITTED: September 3, 1958

ALAD'YEV, I.T.

PHASE I BOOK EXPLOITATION SOV/4396

Akademiya nauk SSSR. Energeticheskiy institut

Konvektivnyy i luchistyy teploobmen (Convection and Radiation Heat Exchange) Moscow, Izd-vo AN SSSR, 1960. 254 p. Errata slip inserted. 3,200 copies printed.

Ed.: M.A. Mikheyev, Academician; Ed. of Publishing House: G.B. Gorshkov; Tech. Ed.: V.V. Brusgul'.

PURPOSE: The book is intended for scientists and engineers working in various branches of science and industry concerned with thermodynamics and heat transfer problems.

COVERAGE: The book consists of 19 original articles on various problems in thermodynamics. The following subjects are discussed: mechanism of heat transfer processes, intensification of heat exchange, determination of thermophysical properties of operating media, heat transfer in supersonic flow of gas, and combustion chambers and nuclear reactors. Theory and experimental techniques are described. Each article describes the conditions of the experiment and tables of the experimental data obtained are given. The data may be used for calculations of heat transfer and heat exchangers, always taking account of

Card 1/[illegible]

AVAILABLE: Library of Congress

ALAD'YEV, I.T., otv. red.; CHERNYAK, A.L., red. izd-va; POLYAKOVA, V.A., tekhn. red.

[Atoms for peace; progress in the peaceful uses of atomic energy] Atom dlia mira; progress v mirnom ispol'zovanii atomnoi energii (sbornik statei). Moskva, Izd-vo Akad. nauk SSSR, 1962. 155 p. (MIRA 15:9)

(Atomic energy)

43196

S/855/62/000/000/005/005
E194/E435

26.5400

AUTHORS: Alad'yev, I.T., Doroshchuk, V.Ye., Miropol'skiy, Z.L., Styrikovich, M.A.

TITLE: Critical boiling in tubes

SOURCE: Teploperedacha. Energ. inst. AN SSSR. Ed. by M.A.Mikheyev. Moscow, Izd-vo AN SSSR, 1962. 124-132

TEXT: A good many critical boiling tests have been made in recent years, usually whilst water is being pumped through an electrically heated stainless steel pipe. It is usually considered that the critical heat transfer rate is uniquely determined by the pressure, rate of flow and the enthalpy of the medium at the place of critical boiling.. This article considers the effects of other factors, such as the distribution of heat flow over the perimeter and length of the pipe, the dimensions of the test length and of neighbouring parts of the system and the compressibility of the fluid in neighbouring parts of the system. This latter point is important because flow pulsations can develop during the tests and when neighbouring spaces are filled with compressible substances, whereas if neighbouring spaces are

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Critical boiling in tubes

filled with incompressible substances pulsations do not develop. Pulsating conditions are the least favourable and they must often be suppressed. It sometimes does not suffice to fit a resistance between the expansion vessel and the heated pipe. If the internal diameter of the test pipe is reduced from 8 to 3 mm there is some increase in the critical heat transfer rate. The length of the test piece can have various effects depending upon the flow conditions, particularly when pulsation is present. The thickness of the duct walls (0.4 and 2 mm respectively) and the roughness of the inner surface (even 0.12 to 0.15 mm deep transverse grooves) had little influence on the critical heat flow. The effects of increasing the pressure, the rate of flow and the enthalpy of the fluid in increasing the critical heat transfer rate are discussed. Experimental work on determination of critical heat transfer rates during the flow of water and steam/water mixtures in pipes is briefly reviewed. Although several methods of generalizing experimental results have been proposed in the USSR the empirical formulae are complicated and often contain numerous empirical constants. Reliable generalizations will only

Critical boiling in tubes

be possible when the actual mechanism and physical laws of critical bubble-wise boiling are understood, which is not yet the case. There are 7 figures.

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S/096/63/000/004/006/010
E194/E455

AUTHOR: Alad'yev, I.T., Doctor of Technical Sciences

TITLE: Heat transfer to fluids boiling in tubes and in bulk

PERIODICAL: Teploenergetika, no.4, 1963, 57-61

TEXT: Experimental data on heat transfer during boiling have been generalized by equations which generalize the process of boiling, i.e. which allow for the number of centers of steam generation, for the dimensions of bubbles and their frequency of formation. It is found that boiling is affected by wetting of the surface by the liquid (contact angle). The following expression is derived

$$\frac{\Delta t}{T_s} = B\left(\frac{10^{-6} q r}{A \lambda T_s}\right)^{0.3}\left(\frac{r}{T_s}\right) \qquad (4)$$

where T_s - saturation temperature °K, r - specific heat of vaporization, λ - coefficient of thermal conductivity, A - Joule's equivalent, B - determined experimentally. Numerous experimental results of various authors for bubblewise boiling of water and steam/water mixture in tubes are plotted in terms of this expression and it is found that agreement is good, within ± 25%. In addition

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Heat transfer to fluids ...

to test results for water boiling in various nonferrous tubes, results are also given for water, ethanol, methanol and certain hydrocarbons boiling in bulk with various metal surfaces, and again the results agree with Eq.(4) to within ± 25%. It is concluded that this formula represents heat-transfer data over the entire range of bubblewise boiling up to the critical rate of heat transfer of fluids below the saturation temperature, and of a vapor-liquid mixture in tubes and in bulk. It is much the simplest of the various dimensionless formulas which have been proposed. It is further concluded that the coefficient B is a constant for a given combination of liquid and surface and does not depend on the pressure. Eq.(4) does not include the surface tension or the viscosity, which accordingly must have little influence on boiling. Previous test results which indicate that the viscosity has such an influence ignored the circumstance that the contact angle altered when the viscosity was raised experimentally (by the method of dissolving sugar). There are 4 figures and 2 tables.

ASSOCIATION: ENIN
Card 2/2

ACCESSION NR: AP4000405 S/0294/63/001/001/0107/0111

AUTHORS: Morozkin, V. I.; Amenitskiy, A. N.; Alad'yev, I. T.

TITLE: Experimental enquiry into the effect of acceleration on the critical heat flux in liquids at the saturation temperature

SOURCE: Teplofizika vy*sokikh temperatur, v. 1, no. 1, 1963, 107-111

TOPIC TAGS: critical heat flux, nucleate boiling, liquid boiling, liquid cooling, heat transfer, acceleration

ABSTRACT: The results reported in this research apply to an acceleration ratio (overload) ranging from 1 to 2050, whereas earlier experiments covered only the range from 0.05 to 180. The liquids employed were water and 96% ethyl alcohol. The experimental setup is described. It is ascertained that the critical heat flux is an increasing function of the inertial acceleration and is proportional

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ACCESSION NR: AP4000405

to the latter raised to the 0.25 power. Both investigated liquids have a similar character in this respect. The experimental data are in satisfactory agreement with the semi-empirical equation of Zuber et al. (International Developments in Heat Transfer, v. 27, 23, 1961). It is shown that the actual critical heat flux in rotating steam generators can be either larger or smaller than the corresponding quantity for stationary steam generators, since the heat flux is changed not only by the overload but also by the increase in the hydrostatic pressure at the surface. Original article has: 3 figures and 5 formulas.

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskogo (Power Institute)

SUBMITTED: 11May63	DATE ACQ: 13Dec63	ENCL: 00
SUB CODE: AS, PR	NO REF SOV: 003	OTHER: 003

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ALAD'YEV, I.T.; YEFIMOV, V.A.

Intensification of heat transfer in electric fields. Inzh.-fiz. zhur. 6 no.8:125-132 Ag '63. (MIRA 16:10)

1. Energeticheskiy institut im. G.M.Krzhizhanovskogo, Moskva.

ALAD'YEV, I.T.; MALKINA, L.I.; POVARNIN, P.I.

Investigation of cooling properties of methyl alcohol at pressures (98-392).10^5 newton per square meter. Inzh.-fiz.zhur. 6 no.10:83-87 O '63. (MIRA 16:11)

1. Energeticheskiy institut imeni G.M.Krzhizanovskogo, Moskva.

ALAD'YEV, I.T., doktor tekhn. nauk; POVARNIN, P.I., doktor tekhn. nauk; MERKEL', Ye.Yu., kand. tekhn. nauk; MALKINA, L.I., kand. tekhn. nauk

Study of the cooling properties of ethyl alcohol at $p \leq 800$ atm. Teploenergetika 10 no.8:70-72 Ag '63. (MIRA 16:8)

1. Energeticheskiy institut im. Krzhizhanovskogo.
(Ethyl alcohol--Thermal properties)

ACCESSION NR: AP4024196 S/0294/64/000/001/0122/0125

AUTHORS: Morozkin, V. I.; Amenitskiy, A. N.; Alad'yev, I. T.

TITLE: Experimental investigation of the effect of acceleration on the boiling crisis in underheated water

SOURCE: Teplofizika vy*sokikh temperatur, no. 1, 1964, 122-125

TOPIC TAGS: boiling crisis, acceleration effect, underheated water, critical heat flow, overload ratio, degree of underheat, specific heat, steam production specific heat

ABSTRACT: The critical heat flow was experimentally investigated in a large volume of singly-distilled water from 0 to 65C below the saturation temperature. The effect of acceleration of the heat flow on the boiling crisis was measured by means of equipment and a procedure described elsewhere (Teplofizika vy*sokikh temperatur v. 1, no. 1, 1963). The overload ratio varied from 15 to 970. It was

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ACCESSION NR: AP4024196

found that the critical heat flux in the underheated liquid increased in the investigated range of overload ratio with increasing degree of underheat, and is a linear function of the factor $c\vartheta/r$, where c is the per unit specific heat of the liquid, ϑ is the degree of underheat, and r is the specific heat of steam production. An empirical formula was obtained

$$q_{\text{кр}_\vartheta} = q_{\text{кр}_{\vartheta=0}} \left[+ 3{,}8 \cdot 10^{-2} \frac{\rho' c\vartheta}{\rho'' r} \right], \quad W/m^2$$

where $q_{cr_{\vartheta=0}}$ was obtained in the earlier investigation. Deviations between the empirical coefficients of the present formula and the formulas given by Kutateladze (Fundamentals of the Theory of Heat Exchange, Mashgiz, 1962) are attributed to differences in the experimental conditions. An increase in the critical heat flux in an underheated liquid as a function of the overload ratio for a constant

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ACCESSION NR: AP4024196

value of underheat is due to the change in the corresponding critical flux in the liquid at saturation temperature. Orig. art. has: 2 formulas and 3 figures.

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskiy (Power Engineering Institute)

SUBMITTED: 18Oct63 DATE ACQ: 16Apr64 ENCL: 01

SUB CODE: PH NR REF SOV: 003 OTHER: 000

Card 3/4

ALAD'YEV, I.T., red.

[Problems of the physics of boiling] Voprosy fiziki kipeniia. Moskva, Izd-vo "Mir," 1964. 443 p. (MIRA 18:3)

ALADYEV, I. T.; POVARNIN, K. P.; MALKINA, L. I.; MERKEL, E. Yu.

"Investigation of the cooling properties of ethyl alcohol at pressures to 800 ATM."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

G. M. Krzhizhanovskiy Power Inst.

L 1108-66 EWT(m)/EWT(1)/EWP(m)/EWA(d)/T/FSC(k) GS

ACCESSION NR: AT5016893 UR/0000/64/000/000/0249/0278

AUTHOR: Alad'yev, I. T.; Yashnov, V. I.

29
B+1

TITLE: Effect of wettability on critical boiling

SOURCE: Konvektivnya teploperedacha v dvukhfaznom i odnofaznom potokakh (Convective heat transfer in two-phase and single-phase flows). Moscow, Izd-vo Energiya, 1964, 249-278

TOPIC TAGS: critical flow, fluid flow, boiling

ABSTRACT: Critical thermal flow during boiling of water in a large volume at atmospheric pressure is experimentally studied in relationship to the method used for cleaning the heating surface, thermal flow and time of preliminary boiling, salt content of the boiling water, roughness and chemical etching, high temperature annealing and grease films, and also the material of the heating surface. It is shown that all these factors affect the critical boiling process for one fundamental reason--they all change the wettability of the surface which heats the boiling water. The contact angles for wetting by water are measured for seven metals with various surface states. It is shown that the wettability is static, which is apparently th

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L 1108-66

ACCESSION NR: AT5016893

reason for the static nature of the separation diameter and separation frequency of the bubbles. A relationship is found between the critical thermal flow and the wetting angle: the critical flow decreases as the contact angle increases. The relative change in critical flow as a function of the contact angle (in the range from 0 to 82°) is given by the linear expression:

$$\frac{q_{cr\theta_i}}{q_{cr\theta = 0^\circ}} = 1 - 0.00788^\circ.$$

It is shown that this relationship should be true for boiling of any liquids at any pressures both in a large volume and for the case of circulation of underheated liquids in channels. Orig. art. has: 16 figures, 2 tables, 5 formulas.

ASSOCIATION: none

SUBMITTED: 17Nov64 ENCL: 00 SUB CODE: ME

NO REF SOV: 037 OTHER: 014

Card 2/2

ALAD'YEV, I.T.; ALEKSANDROV, B.K.; BAUM, V.A.; GOLOVINA, Ye.S.; GOL'DENBERG, S.A.; ZHIMERIN, D.G.; ZAKHARIN, A.G.; IYEVLEV, V.N.; KNORRE, V.G.; KOZLOV, G.I.; LEONT'YEVA, Z.I.; MARKOVICH, I.M.; MEYEROVICH, E.A.; MIKHNEVICH, G.V.; POPKOV, Z.I.; POPOV, V.A.; PREDVODITELEV, A.S.; PYATNITSKIY, L.N.; STYRIKOVICH, M.A.; TOLSTOV, Yu.G.; TSUKHANOVA, O.A.; CHUKHANOV, Z.F.; SHEYNDLIN, A.Ye.

Lev Nikolaevich Khitrin, 1907-1965; obituary. Izv. AN SSSR. Energ. i transp. no.2:159-160 Mr-Ap '65. (MIRA 18:6)

L 35457-65 EWP(m)/EWT(1)/FCS(k)/EWA(d)/EWA(1) Pd-1

ACCESSION NR: AP5007800 S/0281/65/000/001/0129/0134

AUTHOR: Sevast'yanov, R. [illegible]; Zakharov, Yu. V.; Alad'yev, I. T.

TITLE: The influence of tube length, nonuniformity in heat liberation, and "worm"-type whirlers on the critical heat currents in pipes

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 1, 1965, 129-134

TOPIC TAGS: critical fluid flow, critical heat flow, turbulent flow, forced convection, heat loss

ABSTRACT: The majority of reports on the critical heat currents in various fluids flowing through channels of different geometry refer to cases when the kernel of the fluid flow is not heated up to the saturation temperature. The present authors established the dependence of the critical heat flow during the boiling of water within tubes 8 mm in diameter (d) at a pressure of approximately 175 atm, abs, on the mass velocity of the flow (20-500 kg/m^2 sec) and the heated length (L) of the tube (L/d=25-150). The magnitude of the necessary pressure was obtained from the modeling conditions which would permit the application of the results to other liquids with high boiling points. The authors also studied the influence of nonuniformity in heat liberation along the tube, and of "worm"-type whirlers, on the

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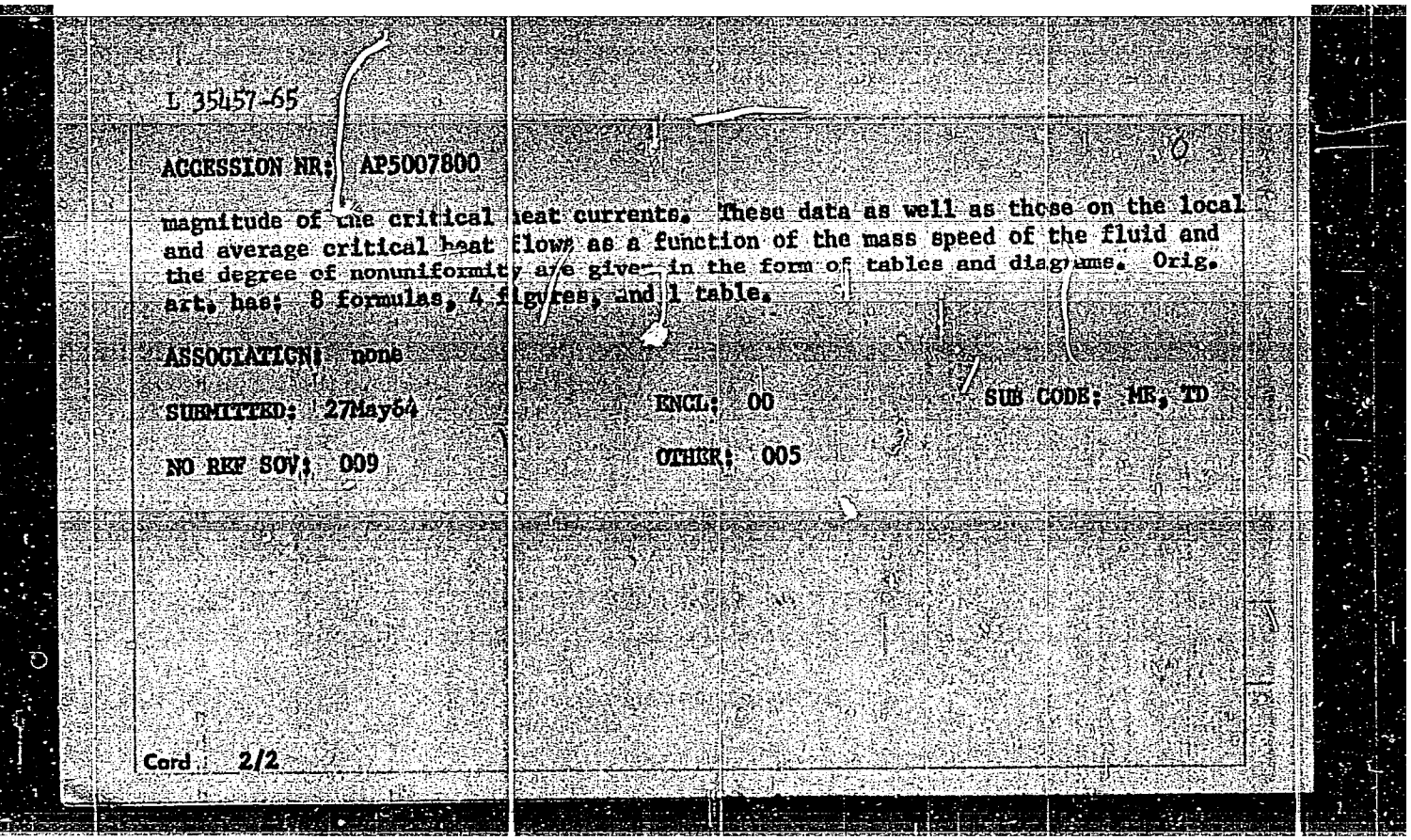

L 35457-65

ACCESSION NR: AP5007800

magnitude of the critical heat currents. These data as well as those on the local and average critical heat flows as a function of the mass speed of the fluid and the degree of nonuniformity are given in the form of tables and diagrams. Orig. art. has: 8 formulas, 4 figures, and 1 table.

ASSOCIATION: none

SUBMITTED: 27May64 ENCL: 00 SUB CODE: ME, TD

NO REF SOV: 009 OTHER: 005

Card 2/2

ACC NR: AT6001352 SOURCE CODE: UR/0000/65/000/000/0059/0062

AUTHOR: Alad'yev, I. T.; Povarnin, P. I.; Malkina, L. I.; Merkel', Ye. Yu.

ORG: Power Institute im. G. M. Krzhizhanovskiy (Energeticheskiy institut)

TITLE: Investigation of the cooling properties of ethanol at pressures up to 800 x 9.8 x 10^4 newtons/meter^2

SOURCE: Teplo- i massoperenos. t. 1: Konvektivnyy teploobmen v odnorodnoy srede (Heat and mass transfer. v. 1: Convective heat exchange in an homogeneous medium). Minsk, Nauka i tekhnika, 1965, 59-62

TOPIC TAGS: ethanol, cooling, heat transfer

ABSTRACT: The experiments were carried out in a flow of alcohol in 1Kh18N9T stainless-steel seamless tubes with inside diameters of 0.0006 to 0.0021 meters and length to diameter ratios from 20 to 175. Tube wall temperature reached 973K, the temperature of the liquid varied from 288 to 623K, and the flow velocity of the alcohol was 5 to 60 meters/sec. The maximum specific heat fluxes reached 35 x 10^6 x 1.163 watts/meter^2. The experiments showed that heat transfer at pressures of 300 x 9.8 x 10^4 newtons/meter^2 is accompanied by thermal

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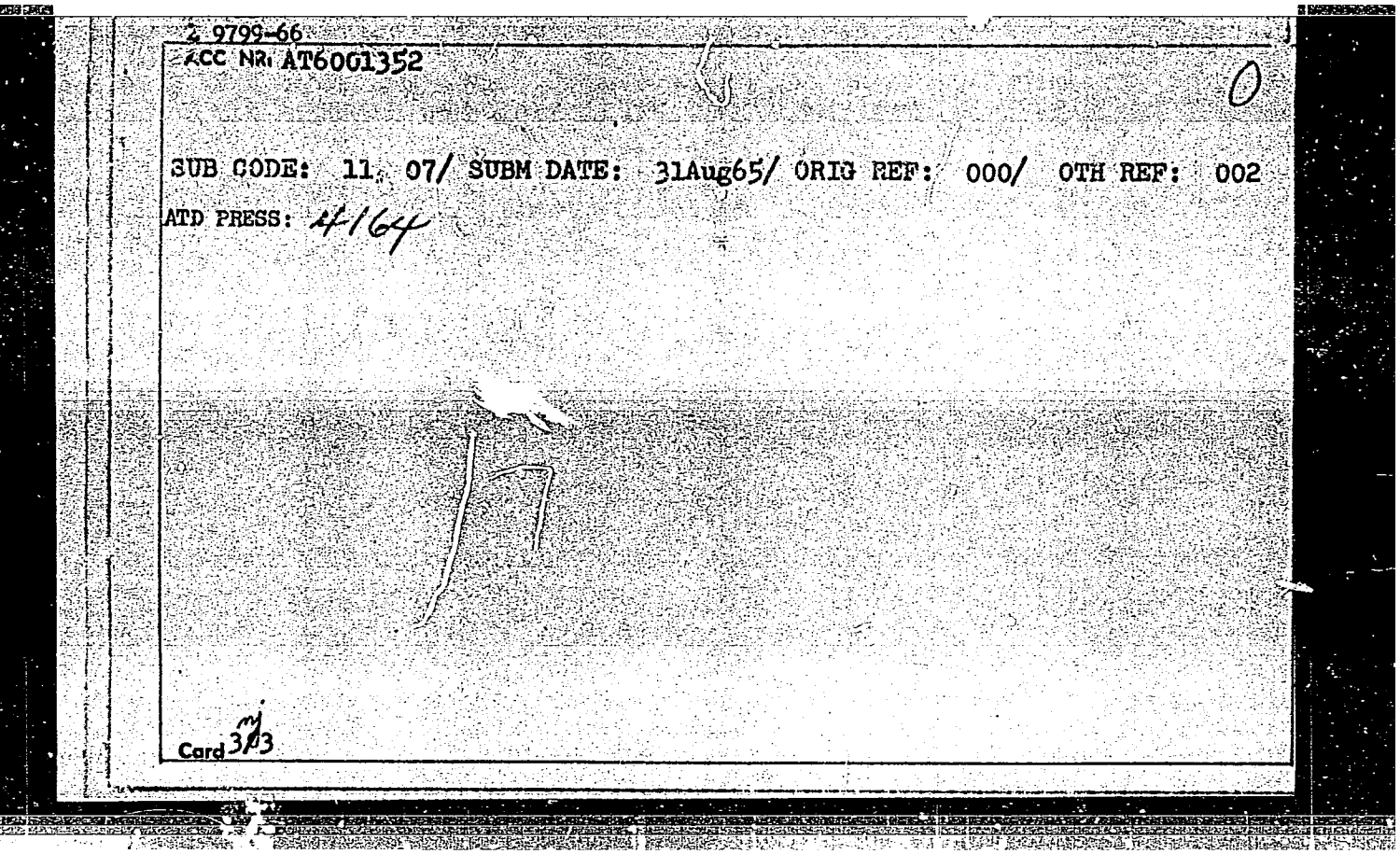
decomposition of ethanol with the formation of a coke-like deposit on the contact surface. Thermal decomposition of ethanol at a flow velocity less than 30 meters/sec starts at wall temperatures of 623-673 K and is practically independent of the liquid temperature. At higher velocities, decomposition of the alcohol is not observed even at a wall temperature of 973 K. At a pressure of 800 x 9.8 x 10^4 newtons/meter^2, thermal decomposition was not observed. In the experiments at 300 x 9.8 x 10^4 newtons/meter^2, pseudo-boiling was observed and led to an increase in the heat transfer rate. Pseudo-boiling was not observed at the pressure of 800 x 9.8 x 10^4 newtons/meter^2. In the fully developed turbulent flow of alcohol in the absence of coke formation and pseudo-boiling at a pressure equal to or greater than 300 x 9.8 x 10^4 newtons/meter^2, heat transfer to ethanol can be calculated by the laws of convective heat transfer. The data obtained satisfy the equation

$$Nu_{l_x} = 0{,}021\, Re_{l_x}^{0.8} Pr_{lg}^{0.43} \left(\frac{Pr_{lg}}{Pr_w}\right)^{0.25} \left(\frac{l_x}{d}\right)^{0.2},$$

where subscripts lg and w refer to the liquid and wall, respectively, and l_x is the length of the tube from the start of heating to the calculating section. Analysis of the experimental results shows that there exists an optimum pressure of the applied pressure at which pseudo-boiling is most developed. Further increase in pressure leads to a worsening of conditions for the formation of a new phase and the generation of pseudo-boiling. [06]



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ACC NR: AT6001352

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SUB CODE: 11, 07/ SUBM DATE: 31Aug65/ ORIG REF: 000/ OTH REF: 002

ATD PRESS: 4164

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L 24077-66 EWT(l)/EWP(m)/EWT(m)/EWA(d)/T/EWA(h)/EWA(l) JKT/WW/JW/JWD/WE/JT
ACC NR: AP6014966 SOURCE CODE: UR/0281/65/000/002/0158/0159

AUTHOR: Alad'yev, I. T.; Aleksandrov, B. K.; Baum, V. A.; Golovina, Ye. S.; Gol'denberg, S. A.; Zhimerin, D. G.; Zakharin, A. G.; Iyevlev, V. N.; Knorre, V. G.; Kozlov, G. I.; Leont'yeva, Z. I.; Markovich, I. M.; Meyerovich, E. A.; Mikhnevich, G.V.; Popkov, V. I.; Popov, V. A.; Predvoditelev, A. S.; Pyatnitskiy, L. N.; Styrikovich, M. A.; Tolstoy, Yu. G.; Tsukhanova, O. A.; Chukhanov, Z. F.; Sheyndlin, A. Ye. 125 120 B

ORG: none

TITLE: Lev Nikolayevich Khitrin

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 2, 1965, 158-159

TOPIC TAGS: academic personnel, physics personnel, combustion, carbon, high temperature research, plasma beam, fuel

ABSTRACT: Professor L. N. Khitrin, Corresponding Member, Academy of Sciences USSR, State Price Laureate, and Doctor of Engineering Sciences, died after a short but severe illness at the age of 58. He was well known here and abroad as an outstanding scientist and specialist in the field of combustion theory and the development of methods for speeding up burning of fuel. He began his scientific work at the All Union Heat Engineering Institute after graduating from the physics department of Moscow University in 1930. His early work was on the propagation of flames in gases, and on heterogenous combustion. In 1948 he defended his Doctor's Dissertation on the theory of combustion of car-

Card 1/2 UDC: 621.036:92

L 24077-66

ACC NR: AP6014966

bon. His monograph "Combustion of Carbon" was awarded the State Prize in 1950. In 1951 he became the permanent director of the laboratory for the intensification of combustion processes of the G. M. Krzhizhanovskiy Power Institute. He was elected a corresponding member of the Academy of Sciences USSR in 1953. He headed the All Union Advisory Board on combustion, represented Soviet science at International Symposia, and was a member of the International Institute of combustion. For a number of years, he directed the Moscow general seminar on combustion, and took an active part in the work of the Scientific Council of the Academy of Sciences USSR, on high temperature heat physics, and of the scientific council on the comprehensive utilization of fuel. He devoted a large amount of attention to teaching work. He directed the Combustion Division of the Physics Department of Moscow State University. His monograph "Physics of Combustion and Explosion" (1957) is a basic text for students in this field. Three Doctor's Dissertations and fifteen Candidate Dissertations were defended under his direction. In the last years of his life he directed work on methods for comprehensive utilization of fuel at power stations so as to obtain valuable products from the mineral part of the fuel, as well as work on the physical chemical processes in a plasma stream, and the mechanism of interaction between carbon and gases. He was the author of more than 60 scientific works, for which he was awarded the Order of the Red Banner of Labor and medals. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 21, 20 / SUBM DATE: none

Card 2/2 pla

ACC NR: AP6025058 SOURCE CODE: UR/0281/66/000/002/0136/0144

AUTHOR: Alad'yev, I. T. (Moscow); Gorlov, I. G. (Moscow); Dodonov, L. D. (Moscow); Korolev, V. S. (Moscow); Fedynskiy, O. S. (Moscow)

ORG: none

TITLE: Critical heat flows and heat emission with potassium boiling in pipes

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 2, 1966, 136-144

TOPIC TAGS: potassium, heat flow, pipe flow, physical property, liquid

ABSTRACT: The authors discuss the results of experimental studies into critical heat flows and heat emission with flowing potassium boiled in tubes under pressures of 1.1--1.3 bar. This research was conducted at ENIN im. G. M. Krzhizhanovskiy in the period from 1960 to 1964. Two identical test facilities were used for these studies, and consisted of a closed-loop circulatory system with tubing made of 1Kh18N9T stainless steel. The potassium was circulated by means of an electromagnetic pump, with discharge measured by an electromagnetic flowmeter, systematically calibrated against a volumetric flowmeter. A block diagram of the test rig is shown in Fig. 1. Test methodology and result processing techniques are discussed. Preliminary argon blow-through of the system was employed, and the commercial potassium employed (TU No. 2010 55) had a melting temperature of 333.6 K. It is found that: 1) the general laws governing critical heat flows and heat emission for boiling potassium are the same as

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UDC: 536.248.2:546.32.536.423.1

ACC NR: AP6025058

3) heat emission with intensive boiling of potassium in tubes of molybdenum and stainless steel, in the parameter range studied, can be described by the equation

$$\alpha = 3.2q^{0.7} \text{ W/m}^2 \text{ deg.}$$

SUB CODE: 20, 11/ SUBM DATE: 14Jul65/ ORIG REF: 008/ OTH REF: 005

Card 3/3

ALAD'YEV, N. G.

RYAZANTSEV, V.F., podpolkovnik meditsinskoy sluzhby; ORLOV, P.M.; ALAD'YEV, N.G.

Aerosol insecticide pots in fly control. Voen.-med.zhur. no.7:85 Jl. '57. (MIRA 11:1)

(AEROSOLS) (INSECTICIDES) (FLIES)

ISPIRYAN, G.P., dotsent, kand.tekhn.nauk; CHMELEV, V.S., student; YUPIK, V.P., student; ALAD'YEVA, Ye.I., student; GUSEVA, V.V., student

Economic justification of the optimum program for continuous shoe production lines. Izv.vys.ucheb.zav.; tekh.leg.prom. no.2:3-12 '61. (MIRA 14:5)

1. Kiyevskiy tekhnologicheskiy institut legkoy promyshlennosti. Rekomendovana kafedroy ekonomiki promyshlennosti i organizatsii proizvodstva.

(Shoe manufacture) (Assembly-line methods)

ALADYSHKIN, A.S.

POSPELOV, G.L., starshiy nauchnyy sotrudnik; LAPIN, S.S.; BELOUS, N.Kh.; KLYAROVSKIY, V.M.; KINE, O.G.; VAKHRUSHEV, V.A.; SHAPIRO, I.S., starshiy nauchnyy sotrudnik; KALUGIN, A.S.; MUKHIN, A.S.; GARNETS, N.A.; SPEYT, Yu.A.; SELIVESTROVA, M.I.; RUTKEVICH, V.G.; BYKOV, G.P.; NIKONOV, N.I.; SAKOVICH, K.G.; MEDVEDKOV, V.I.; ALADYSHKIN, A.S.; PAN, F.Ya.; RUSANOV, M.G.; YAZBUTIS, E.A.; ROZHDESTVENSKIY, Yu.V.; SAVITSKIY, G.Ye.; PRODANCHUK, A.D.; LYSENKO, P.A.; LEBEDEV, T.I.; KAMENSKAYA, T.Ya.; MASLENNIKOV, A.I.; PIPAR, R.; DODIN, A.L.; MITROPOL'SKIY, A.S.; LUKIN, V.A.; ZIMIN, S.S.; KOREL', V.G.; DERBIKOV, I.V.; BARDIN, I.P., akademik, nauchnyy red.; GORBACHEV, T.F., nauchnyy red.; YEROFEYEV, N.A., nauchnyy red.; NEKRASOV, N.N., nauchnyy red.; SKOBNIKOV, M.L., nauchnyy red.; SMIRNOV-VERIN, S.S., nauchnyy red. [deceased]; STRUMILIN, S.G., akademik, nauchnyy red.; KHLEBNIKOV, V.B., nauchnyy red.; CHINAKAL, N.A., nauchnyy red.; SLEDZYUK, P.Ye., red.toma; SOKOLOV, G.A., red.toma; BOLDYREV, G.P., red.; VOGMAN, D.A., red.; KASATKIN, P.F., red.; KUDASHEVA, I.G., red.izd-va; KUZ'MIN, I.F., tekhn.red.

[Iron-ore deposits of the Altai-Sayan region] Zhelezorudnye mesto-rozhdeniia Altae-Saianskoi gornoi oblasti. Vol.1. Book 1. [Geology]

(Continued on next card)

POSPELOV, G.L.---(Continued) Card 2.
Geologiia. Otvetstvennyi red. I.P. Bardin. Moskva. 1958. 330 p.
(MIRA 12:2)

1. Akademiya nauk SSSR. Mezhduvedomstvennaya postoyannaya komissiya po zhelezu. 2. Postoyannaya mezhduvedomstvennaya komissiya po zhelezu Akademii nauk SSSR (for Pospelov, Shapiro, Sokolov). 3. Zapadno-Sibirskiy filial Akademii nauk SSSR (for Vakhrushev, Pospelov.) 4. Zapadno-Sibirskoye geologicheskoye upravleniye (for Sakovich). 5. Krasnoyarskoye geologicheskoye upravleniye (for Pan). 6. Zapadno-Sibirskiy geologo-razvedochnyy trest Chermetrazvedka (for Prodanchuk). 7. Sibirskiy geofizicheskiy trest (for Pipar). 8. Vsesoyuznyy geologicheskiy nauchno-issledovatel'skiy institut (for Dodin). 9. Gornaya ekspeditsiya (for Mitropol'skiy). 10. Gornoye upravleniye Kuznetskogo metallurg.kombinata (for Lukin). 11. Tomskiy politekhnicheskiy institut (for Zimin). 12. Sibirskiy metallurg.institut (for Korel'). 13. Trest Sibneftegeofizika (for Derbikov). (Altai Mountains--Iron ores) (Sayan Mountains--Iron ores)

AIA DYSHKIN, A.S.

Some data on mineral-resource species in the Krasnoyarsk Territory. Mat. po geol. i pol.iskop.Kras.kraia no.3:3-8 '62. (MIRA 17:2)